



Heroes of Hope Thyroid cancer

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Age Group: 10-13**

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Abstract

Background

Thyroid cancer incidence has increased globally over last few decades. This cancer occurs when the thyroid gland goes through genetic mutation which causes the thyroid cells to rapidly increase. [1](#)

Aim

The goal of the presentation is to spread awareness on Thyroid cancer; Causes, Symptoms, Risk Factors, Treatment, Diet, Prevention, Statistics, Ethnicity and Race

Methods

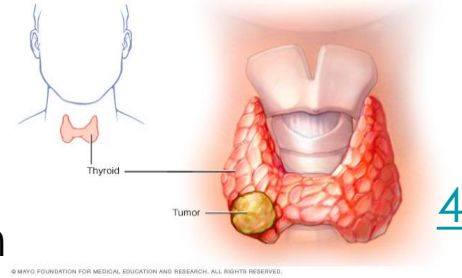
Publically available data was used for research. Some research sites we used are endocrineweb.com, pubmed.com, and cancer.org

Conclusion

In spite of the high incidence rate, the mortality rate is declining due to the changes in diagnosis and treatment. Bringing awareness to this cancer can help with prevention, early detection and treatment [4](#)

Thyroid Cancer and Statistics

- The thyroid is a butterfly shaped gland located in the front of the throat that controls many vital; Breathing, Heartbeat, Bodyweight [1](#)
- The thyroid gland goes through genetic mutation which cells to rapidly increase. An accumulation of these abnormal thyroid cells will cause a tumor
- The tumor can spread throughout the body by invading nearby tissue, metastasize to lymph nodes or through bloodstream to distant organs like lung, liver, brain, bones, etc
- There is no connection between hypothyroidism and thyroid cancer [2](#)
- Women are about three times more likely to develop thyroid cancer
Women are usually diagnosed ~40s-50s and men around 60s and 70s
- Most recent estimates for the thyroid cancer in the United States are:
 - ~52,070 new cases (14,260 in men and 37,810 in women)
 - ~2,170 deaths (1,020 men and 1,150 women)
- 2012 estimates for the thyroid cancer in worldwide are:~230,000 new cases among women and 70,000 among men [3](#)



Race

- Caucasians have the largest increase in age adjusted thyroid cancer.
- Incidence rate in non-Hispanic is higher than in Hispanics
- People of Asian/Pacific islander origin have less chance of getting thyroid cancer than whites. [5](#)

Gender & Age

- The chance of thyroid cancer in women is notably higher than in men.
- Men typically have the more aggressive thyroid cancer or the more advanced stage of it.
- Some experimental studies show that sex hormones may have a role in tumor progression.
- Men tend to be older than women when they get thyroid cancer. [6](#)

Causes

- The cause of thyroid cancer is unknown, but certain risk factors have been identified [7](#)
- Higher rates of thyroid cancer occur among people with uncommon genetic conditions such as:
 - Familial adenomatous polyposis (FAP): People with this syndrome have a very high risk of colon cancer and also have an increased risk for papillary thyroid cancer. [8](#)
 - Certain changes in a person's DNA can cause thyroid cells to become cancerous
 - Some genes contain instructions for controlling when our cells grow and divide into new cells or when they die. (oncogenes and tumor suppressor genes)
- Radiation Exposure [9](#)

Symptoms and Risk Factors

- The symptoms of thyroid cancer are not common in early stages of the disease but in later stages there may be:
 - A lump in your throat that can be felt and seen on the outside
 - A change to the patient's voice
 - Difficulty swallowing
 - Pain in the area of the neck
 - Swollen lymph nodes in the neck [10](#)
- Risk Factors includes: Family History, Goiter (abnormal growth of thyroid gland), Lack of Iodine in the diet, women with breast cancer, autoimmune disease; "Hashimoto's thyroiditis"

Diet 11

- Studies show that diet plays a role in thyroid cancer but various studies show conflicting results due to variations in dietary patterns, life-styles and nutrition in different ethnic groups.
- People residing in places that don't have enough daily iodine intake but high fish intake have no increased risk of thyroid cancer.
- But places with enough iodine intake with a lot of seaweed showed risk for the cancer (possibly due to high iodine content).
- Cruciferous vegetables such as cabbage, broccoli, etc. showed increased risk as well.
- People who regularly take multivitamins also have a risk for thyroid and papillary cancer than those who don't because of a larger intake of iodine.
- Some meats like chicken and poultry are associated with the cancer, but dairy products that have iodine are not.
- Nitrate and nitrite (possible carcinogens) can increase risk of thyroid cancer.

Types of thyroid cancer

Follicular [12](#)

Follicular thyroid cancer or *follicular carcinoma* is the second most common type of thyroid cancer. 15% of thyroid cancer cases are follicular thyroid cancer. Follicular thyroid cancer is more aggressive (malignant) than papillary thyroid cancer. This type of cancer rarely occurs in a young age group, and is regularly diagnosed in people above 55 years old. Age is a very important factor of prognosis. Follicular thyroid cancer occurs more in females than men by a 3:1 ratio.

Papillary [13](#)

The most common and mostly papillary thyroid cancers are completely asymptomatic. Papillary Thyroid Cancer normally arises as a solid, irregular, or cystic mass that comes from an otherwise normal thyroid tissue. Papillary thyroid cancer commonly spreads to adjacent lymph nodes. The ages that papillary thyroid cancer regularly occurs are 30-50 years old. Women have a much better prognosis than men [12](#)



[14](#)

Type of thyroid cancer - Continued

Hurthle cell¹⁵

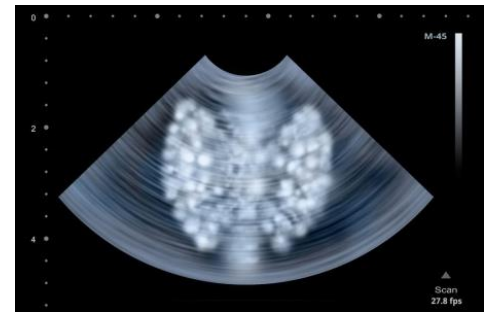
Hurthle cell cancer doesn't always cause symptoms. It is also normally detected during a physical examination or an imaging test done for any other medical reason. Some signs and symptoms of Hurthle Cancer: A lump in your neck, Pain in your neck or throat etc. However these signs and symptoms don't necessarily mean you have Hurthle cell cancer.

Medullary¹⁶

The early stages of medullary thyroid cancer there are usually no symptoms whatsoever. Medullary cancer also has a much lower cure rate than any other type of thyroid cancer. Because of this early detection is normally found if the patient is noticing a large lump in the neck. This is why usually medullary cancer are diagnosed only after doctors feel the neck of the patient or after doing an ultrasound of the patient. It is more common in females than males .¹⁸

Type of thyroid cancer - Continued

Anaplastic [17](#)



[18](#)

- Anaplastic thyroid cancer is the least common type of thyroid cancer (only 1% of all thyroid cancer cases)
- most deadly of the four types
- very low cure rate
- may show up many years after radiation exposure
- Most common symptom of anaplastic thyroid cancer is a large mass growing on your neck.
- Has the ability to invade in cervical lymph nodes and distant organs.
- 50% chance of the cancer spreading to the lungs. Age group is 65 years and older(very rare in younger patients).
- More common in males than female by a 2:1 ratio

Stages of thyroid cancer [19](#)

Papillary or follicular thyroid

Stage I: This stage is when the tumor is within the thyroid (size less than 2 cm) without spread to lymph nodes and no distant metastasis

Stage II: Tumor confined to thyroid (2-4 cm)

Stage III: This stage describes a tumor with spread to lymph nodes and no metastasis.

Stage IV: This stage describes a tumor that has spread to nearby structures or distant organs.

Medullary thyroid cancer

Stage I: This stage describes a small tumor with no spread to lymph nodes and no distant metastasis

Stage II: This stage describes a larger localized tumor with no spread to lymph nodes and no metastasis

Stage III: This stage describes any localized tumor that has spread to the central compartment of lymph nodes but has not metastasized .

Stage IV: This stage describes a tumor that has spread to nearby structures or distant organs

Treatment 20

- Lobectomy: It is an operation that removes the lobe that contains the thyroid cancer, which is usually along the isthmus. This type of operation is mostly used to treat differentiated thyroid cancer that are small and show no sign of spreading in the body.
- Thyroidectomy: This is the most common surgery for thyroid cancer. Just like the lobectomy it is normally done in the front of the neck, a few inches long.
- Lymph node removal: This procedure is done if the cancer has infected the nearby lymph nodes in the neck and this treatment is also especially important for treatment of medullary thyroid cancer and for anaplastic cancer.
- Thyroid surgeries can sometimes result in temporary or permanent hoarseness or loss of voice, damage to the parathyroid glands, low blood calcium levels, muscle spasms and feelings of numbness and tingling, excessive bleeding

Treatment Continued

- Radioactive Iodine: Since the thyroid gland absorbs nearly all of the iodine in your body, radioactive iodine(also called RAI) can be used to treat thyroid cancer. [21](#)
- Targeted Therapy for Thyroid Cancer: This therapy is where newer drugs are specifically target the changes inside cells that cause them to become cancerous are being used to treat thyroid cancer. [22](#)
- Thyroid Hormone Therapy: The patient will need to take a pill called levothyroxine to replace the natural hormone and help maintain normal metabolism [23](#)
- Chemotherapy: This is a type of synthetic therapy that uses anti-cancer drugs that are injected into a vein or are taken by mouth. [24](#)

Prevention 25

- Radiation exposure, especially in childhood, is a known thyroid cancer risk factor. Because of this, doctors no longer use radiation to treat less serious diseases.
- If there is an increased risk it is likely to be small, but to be safe, children should not have these tests unless they are absolutely needed. When they are needed, they should be done using the lowest dose of radiation that still provides a clear picture.
- If you have a family history of MTC, it is important that you see a doctor. Removing the thyroid gland in children who carry the abnormal gene will probably prevent a cancer that might otherwise be fatal. In many cases, it is not possible to prevent thyroid cancer.
- Having prophylactic (preventive) surgery, Eating a healthy diet, and Maintaining a healthy weight can also help protect against many diseases, including cancer of the thyroid.

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